

# PATENT ABSTRACTS OF JAPAN

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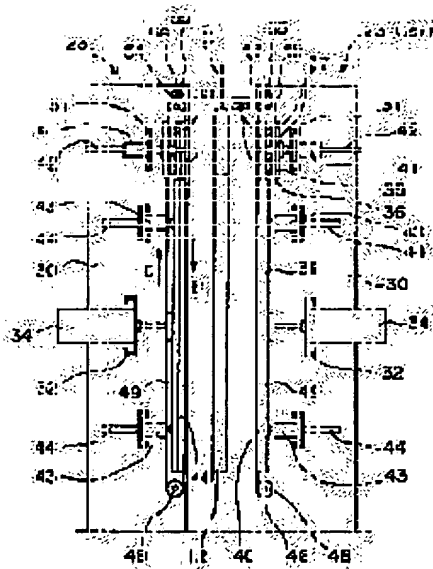
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## (54) DEVICE OF WASHING DEHYDRATION



(57)Abstract:

PURPOSE: To dehydrate washing in a state suspended from a hanger and to realize the consistent assembly-line work of a washing process.

CONSTITUTION: A dehydration device is equipped with a conveyor means receiving hangers 13 having washings 12 after the completion of washing suspended therefrom, the drive means intermittently driving the conveyor means and the dehydration means provided to the feed route of the conveyor means and individually dehydrating the washings 12 suspended from the hangers 13. The dehydration means is constituted of a sponge rubber water absorbing device 23 consisting of the sponge rubbers 38,40 arranged in relation to the washings 12 suspended from the conveyor means and an air cylinder 34 moving the sponge rubbers 38,40 in the direction of the washings 12.

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] A conveyor means to receive and convey the hanger which hung the washing which wash completed in the dehydrator which dehydrates the washing, It has the driving means which drives this conveyor means intermittently, and a dehydration means to dehydrate separately the washing which was prepared in the conveyance path of said conveyor means, and was hung by the hanger. Said dehydration means The dehydrator of the washing characterized by being sponge rubber water absorption equipment which consists of sponge rubber which countered the washing hung by said conveyor means and was arranged, and a driving means which moves this sponge rubber in the direction of the washing.

[Claim 2] A conveyor means to receive and convey the hanger which hung the washing which wash completed in the dehydrator which dehydrates the washing, It has the driving means which drives this conveyor means intermittently, and a dehydration means to dehydrate separately the washing which was prepared in the conveyance path of said conveyor means, and was hung by the hanger. Said dehydration means The dehydrator of the washing characterized by being the suction dehydrator which consists of the dehydration chamber which countered the washing hung by said conveyor means and was arranged, a blower exhaustor connected to this dehydration chamber, and a driving means which moves said dehydration chamber in the direction of the washing.

[Claim 3] A conveyor means to receive and convey the hanger which hung the washing which wash completed in the dehydrator which dehydrates the washing, It is prepared in the conveyance path of the driving means which drives this conveyor means intermittently, and said conveyor means. It has at least three dehydration stations which dehydrate separately the washing hung by the hanger. In the 1st dehydration station The sponge rubber which countered the washing hung by said conveyor means and was arranged, The sponge rubber water absorption equipment which consists of a driving means which moves this sponge rubber in the direction of the washing is arranged in the both sides of the washing, respectively. In the 2nd dehydration station The dehydration chamber which countered the washing hung by said conveyor means and was arranged, The suction dehydrator which consists of a blower exhaustor connected to this dehydration chamber and a driving means which moves said dehydration chamber in the direction of the washing is arranged. In the 3rd dehydration station The dehydrator of the washing characterized by arranging the dehydration means of the same structure as said sponge rubber water absorption equipment in the same side as said suction dehydrator.

[Claim 4] The dehydrator of the washing according to claim 1 or 3 characterized by coming to have the squeezing roller which carries out a pressure welding to sponge rubber, and which is caudad driven from the upper part to said sponge rubber water absorption equipment.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the dehydrator of the washing used for industrial cleaning equipment.

[0002]

[Description of the Prior Art] After this washing by the solvent, the detergent, or washing in cold water completes wash like common knowledge, it dehydrates with a dehydrator and dries with a dryer after that. Generally this washing performs much washing with a washing machine at once, and dehydration is performed within the same washing machine after that.

[0003] By the way, since shoulder collapse of the washing produced the approach of carrying out actual washing of much washing with a washing machine at once as described above, these people hung the washing to the hanger, and hung the hanger which hung this washing on the conveyor means, and it proposed establishing and carrying out actual washing of this washing means for the conveyance path of a conveyor means.

[0004]

[Problem(s) to be Solved by the Invention] As described above, this washing can hang the one washing at a time to a hanger, and can perform it now. however, dehydration of the washing hung to the hanger is now -- there was no suitable means and it had become the trouble of the consistent assembly line of a wash process.

[0005] The purpose of this invention can be dehydrated hanging the washing to a hanger, and is to offer the dehydrator of the washing which can realize the consistent assembly line of a wash process.

[0006]

[Means for Solving the Problem] The 1st configuration of this invention for attaining the above-mentioned purpose A conveyor means to receive and convey the hanger which hung the washing which wash completed, It has the driving means which drives this conveyor means intermittently, and a dehydration means to dehydrate separately the washing which was prepared in the conveyance path of said conveyor means, and was hung by the hanger. Said dehydration means It is characterized by being sponge rubber water absorption equipment which consists of sponge rubber which countered the washing hung by said conveyor means and was arranged, and a driving means which moves this sponge rubber in the direction of the washing.

[0007] The 2nd configuration of this invention for attaining the above-mentioned purpose A conveyor means to receive and convey the hanger which hung the washing which wash completed, It has the driving means which drives this conveyor means intermittently, and a dehydration means to dehydrate separately the washing which was prepared in the conveyance path of said conveyor means, and was hung by the hanger. Said dehydration means It is characterized by being the suction dehydrator which consists of the dehydration chamber which countered the washing hung by said conveyor means and was arranged, a blower exhauster connected to this dehydration chamber, and a driving means which moves said dehydration chamber in the direction of the washing.

[0008] The 3rd configuration of this invention for attaining the above-mentioned purpose A conveyor means to receive and convey the hanger which hung the washing which wash completed, It is prepared in the conveyance path of the driving means which drives this conveyor means intermittently, and said conveyor means. It has at least three dehydration stations which dehydrate separately the washing hung by the hanger. In the 1st dehydration station The sponge rubber which countered the washing hung by said conveyor means and was arranged, The sponge rubber water absorption equipment which consists of a driving means which moves this sponge rubber in the direction of the washing is arranged in the both sides of the washing, respectively. In the 2nd dehydration station The dehydration chamber which countered the washing hung by said conveyor means and was arranged, The suction

dehydrator which consists of a blower exhauster connected to this dehydration chamber and a driving means which moves said dehydration chamber in the direction of the washing is arranged. In the 3rd dehydration station The dehydration means of the same structure as said sponge rubber water absorption equipment is characterized by being arranged in the same side as said suction dehydrator.

[0009]

[Function] According to the 1st configuration, the hanger with which the washing was hung is hung on a conveyor means, a conveyor means is driven intermittently, and the washing is made to counter sponge rubber water absorption equipment. And the moisture of the washing is \*\*\*\*(ed) by sponge rubber by advancing sponge rubber by the driving means and carrying out the pressure welding of the sponge rubber to the washing.

[0010] According to the 2nd configuration, the hanger with which the washing was hung is hung on a conveyor means, a conveyor means is driven intermittently, and the washing is made to counter a suction dehydrator. And a dehydration chamber is made to contact the washing by the driving means, and the moisture of the washing is attracted by the dehydration chamber.

[0011] According to the 3rd configuration, the washing conveyed by hanging the hanger with which the washing was hung on a conveyor means, and driving a conveyor means intermittently is first located between two sponge rubber water absorption equipments of the 1st dehydration station. And the washing is pinched by two sponge rubber water absorption equipments, the pressure welding of the sponge rubber is carried out to the washing, and the moisture of the washing is \*\*\*\*(ed) by operation of the 1st configuration of having described above. Next, if the washing hung by the hanger arrives at the 2nd dehydration station, the moisture of the washing will be further attracted by the dehydration chamber according to an operation of the 2nd configuration of having described above with the suction dehydrator. When the washing hung by the hanger after that arrives at the 3rd dehydration station, even if moisture remains in the washing side attracted by the suction dehydrator by said 2nd dehydration station, the sponge rubber water absorption equipment of the 3rd dehydration station will \*\*\*\*.

[0012]

[Example] Hereafter, drawing 1 thru/or drawing 8 explain one example of this invention. As shown in drawing 1 and drawing 2, bearing of the rotation of a driving shaft 2 and the follower shaft 3 is made free to the conveyor substrate 1 fixed by the member which is not illustrated up. Sprockets 4 and 5 are fixed to the lower limit section and the upper limit section of a driving shaft 2, respectively, a sprocket 6 is fixed to the lower limit section of the follower shaft 3, and the chain 7 is hung on the sprocket 4 and the sprocket 6 in the shape of endless. Moreover, the chain 10 is hung on the sprocket 9 which the motor 8 was fixed on the conveyor substrate 1, and was fixed to the output shaft of a motor 8, and said sprocket 5 in the shape of endless. The hanger credit implement 11 is being hung and fixed to said chain 7 at equal intervals, and the hanger 13 which hung the washing 12 is hung on the hanger credit implement 11.

[0013] Therefore, if the hanger 13 with which the washing 12 was hung is hung on the hanger credit implement 11 by automatic or handicraft in the injection section 14, the pitch [ every ] intermittent drive of the hanger credit implement 11 will be carried out for a chain 7 by rotation of a motor 8. Thereby, the hanger 13 with which the washing 12 was hung is intermittently moved in the direction of arrow-head A, and is sent to a takeoff connection 15. And in a takeoff connection 15, it is taken out from the hanger credit implement 11 by automatic or handicraft, and is sent to the following desiccation process.

[0014] Three dehydration stations 20, 21, and 22 are established in the bay of said chain 7 between said injection sections 14 and takeoff connections 15 at the same spacing as the pitch of the hanger credit implement 11. Two sponge rubber water absorption equipments 23 and

23 which consist of the completely same structures carry out phase opposite, and are arranged in the 1st dehydration station 20 by the both sides of the washing 12 hung by the hanger 13. The suction dehydrator 24 is arranged in the 2nd dehydration station 21. Phase opposite is carried out, it receives in the both sides of the washing 12 hung by the hanger 13 with sponge rubber water absorption equipment 25, and equipment 26 is arranged in the 3rd dehydration station 22.

[0015] The sponge rubber water absorption equipments 23 and 23 of the 1st dehydration station 20 consist of structure as shown in drawing 3 thru/or drawing 5. the both-sides plates 30 and 30 -- the upper part section -- and the cylinder stationary plates 31 and 32 are mostly fixed to a center section, respectively, and air cylinders 33 and 34 are being fixed to the cylinder stationary plates 31 and 32, respectively. A support plate 35 is fixed to an air cylinder 33, the sponge rubber maintenance plate 37 is fixed to a support plate 35 through flat spring 36, and sponge rubber 38 is being fixed to the sponge rubber maintenance plate 37. The sponge rubber maintenance plate 39 is fixed to an air cylinder 34, and sponge rubber 40 is being fixed to the sponge rubber maintenance plate 39. Here, sponge rubber 38 corresponds to the part of a hanger 13, and sponge rubber 40 supports the lower part section of a hanger 13. Guide pin bushing 41 is fixed to the both sides of an air cylinder 33 by said cylinder stationary plate 31, and the guide rod 42 fixed to the support plate 35 is inserted in it free [ sliding ] at guide pin bushing 41. The guide rod 44 of an air cylinder 34 fixed to guide pin bushing 43 by the sponge rubber maintenance plate 39 by fixing guide pin bushing 43 up and down is inserted in said cylinder stationary plate 32 free [ sliding ].

[0016] Bearing of the rotation of the follower shaft 45 and a driving shaft 46 is made respectively free to the upper part of the sponge rubber maintenance plate 37 of said both-sides plates 30 and 30, and the lower part of the sponge rubber maintenance plate 39. Driven sprocket wheels 47 and 47 and the drive sprockets 48 and 48 are fixed to the inside section of the both-sides plates 30 and 30 of the follower shaft 45 and a driving shaft 46, respectively, and the chain 49 is hung on driven sprocket wheels 47 and 47 and the drive sprockets 48 and 48 in the shape of endless. The driving shaft 46 is extended outside one side plate 30, and the sprocket 50 is being fixed to this part. Moreover, the motor 51 is being fixed to one [ said ] side plate 30, and the chain 53 is hung on the sprocket 52 fixed to the output shaft of this motor 51, and said sprocket 50 in the shape of endless. The roller shaft support plates 54 and 54 are being fixed to said chain 49, respectively, and the both ends of the roller pivot 56 where bearing of the rotation of a squeezing roller 55 was made free are being fixed to the roller shaft support plates 54 and 54.

[0017] The suction dehydrator 24 of the 2nd dehydration station 21 consists of structure as shown in drawing 6 thru/or drawing 8. On bottom plate 60a of a stand 60, the both ends of the guide rod 61 are being fixed, the dehydration chamber maintenance base 62 is established in the guide rod 61 free [ sliding ], and the actuating rod of an air cylinder 63 with which the dehydration chamber maintenance base 62 was fixed on said bottom plate 60a is being fixed. the dehydration chambers [ two or more / in the dehydration chamber maintenance base 62 / (an example is 11 pieces) ] 64 and 64 ... is being fixed. stand 60 part behind said dehydration chamber maintenance base 62 -- the dehydration chambers 64 and 64 -- the blower exhausters 65 and 65 of ... and the same number (an example is 11 pieces) ... arranges -- having -- said dehydration chambers 64 and 64 -- the ... and blower exhausters 65 and 65 ... in between, the steam separators [ two or more (an example is two pieces) ] 66 and 67 are arranged. Here, a steam separator 66 has five \*\* corresponding to five upper dehydration chambers 64, and the steam separator 67 has six \*\* corresponding to six downward dehydration chambers 64. And the dehydration chamber 64 is connected to each blower exhauster 65 through each \*\* of a steam separator 66.

[0018] The sponge rubber water absorption equipment 25 of the 3rd dehydration station 22 consists of the same structure as the sponge rubber water absorption equipment 23 of the 1st

dehydration station 20, and is arranged in the same side as said suction dehydrator 24. Receptacle equipment 26 consists of the almost same structure as sponge rubber water absorption equipment 23, and does not have the drive of sponge rubber 38 and 40, a squeezing roller 55, and a squeezing roller 55, and others of it are the same as that of sponge rubber water absorption equipment 23.

[0019] Next, an operation is explained. As shown in drawing 1 and drawing 2, the hanger 13 with which the washing 12 before dehydration was hung is hung one by one by the hanger credit implement 11 from the injection section 14. And by the intermittent drive of a chain 7, the washing 12 is first located between the sponge rubber water absorption equipment 23 of the 1st dehydration station 20, and 23, and stops. Then, the air cylinders 33 and 34 of the sponge rubber water absorption equipments 23 and 23 shown in drawing 3 thru/or drawing 5 operate, sponge rubber 38 and 40 moves forward, and sponge rubber 38 and 40 is pushed against the washing 12 from both sides. Thereby, the moisture of the washing 12 is \*\*\*\*(ed) by sponge rubber 38 and 40. After maintaining this condition fixed time, air cylinders 33 and 34 are retreated and sponge rubber 38 and 40 separates them from the washing 12.

[0020] A motor 51 is made to drive at the same time sponge rubber 38 and 40 separates from the washing 12. Thereby, rotation of a motor 51 is rotated by the driving shaft 46 through a sprocket 52, a chain 53, and a sprocket 50. Rotation of a driving shaft 46 is transmitted to a chain 49 through the drive sprockets 48 and 48 and driven sprocket wheels 47 and 47, a squeezing roller 55 is moved more below (the direction of arrow-head B) than the upper part, and it is moved to the method of the Gokami (the direction of arrow-head C). By migration of the direction of arrow-head B of a squeezing roller 55, the pressure welding of the squeezing roller 55 is carried out to sponge rubber 38 and 40, and the moisture which sinks into sponge rubber 38 and 40 is pressed out.

[0021] when sponge rubber 38 and 40 separates from the washing 12 as mentioned above, it is shown in drawing 1 and drawing 2 -- again, one step is driven, a chain 7 is located ahead of the suction dehydrator 24 of the 2nd dehydration station 21 next, and the washing 12 is stopped. then, the air cylinder 63 of the suction dehydrator 24 shown in drawing 6 thru/or drawing 8 -- operating -- the dehydration chamber maintenance base 62 -- moving forward -- the dehydration chambers 64 and 64 ... contacts the washing 12 and the blower exhausters 65, 65, and 65 operate. Thereby, suction is performed and the washing 12 is dehydrated. if dehydration is completed -- an air cylinder 63 -- the above and hard flow -- operating -- the dehydration chambers 64 and 64 ... is separated from the washing 12.

[0022] the dehydration chambers 64 and 64 -- after ... separates from the washing 12, by intermittent migration of the chain 7 shown in drawing 1 and drawing 2, the washing 12 wins popularity with the sponge rubber water absorption equipment 25 of the 3rd dehydration station 22, and is located between equipment 26. Although the sponge rubber water absorption equipment 25 and the receptacle equipment 26 of this 3rd dehydration station 22 are not necessarily needed, since moisture may remain in washing 12 part of the side attracted from said suction dehydrator 24 a little, it prepares in order to dehydrate completely more. Therefore, the sponge rubber water absorption equipment 25 of the 3rd dehydration station 22 is formed in the same side as the suction dehydrator 24. Since sponge rubber water absorption equipment 25 consists of the same structure as sponge rubber water absorption equipment 23 as described above, and receptacle equipment 26 consists of structure excluding sponge rubber 38 and 40 from sponge rubber water absorption equipment 23 as described above, detailed explanation of the operation is omitted. That is, the washing 12 is dehydrated like said sponge rubber water absorption equipment 23 by sponge rubber water absorption equipment 25. Dehydration is completed, and if the washing 12 is sent intermittently and reaches a takeoff connection 15, the hanger 13 on which the washing 12 was hung by automatic or hand control will be taken out from the hanger credit implement 11, and will be sent to the following desiccation process.

[0023] In addition, although the above-mentioned example explained the case where sponge rubber water absorption equipment 23 and the suction dehydrator 24 were formed, it is good for accepting it sponge rubber water absorption equipment 23 to accept it suction dehydrator 24. However, if sponge rubber water absorption equipment 23 and the suction dehydrator 24 are formed as shown in this example, the dehydration effectiveness will be demonstrated further.

[0024] Thus, since according to this example the hanger 13 which hung the washing 12 is hung on a chain 7, at least one of sponge rubber water absorption equipment 23 and the suction dehydrators 24 is prepared in the conveyance path of this chain 7 as a dehydration means and the washing 12 is dehydrated, a consistent assembly line with this washing process can be planned.

[0025]

[Effect of the Invention] A conveyor means to receive and convey the hanger which hung the washing which wash completed according to this invention, It has the driving means which drives this conveyor means intermittently, and a dehydration means to dehydrate separately the washing which was prepared in the conveyance path of said conveyor means, and was hung by the hanger. Said dehydration means Since it consists of the sponge rubber which countered the washing hung by said conveyor means and was arranged or a dehydration chamber, and a driving means which moves sponge rubber or a dehydration chamber in the direction of the washing It can dehydrate hanging the washing to a hanger and the consistent assembly line of a wash process can be realized.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the front view showing the outline of the configuration of one example of the dehydrator of the washing which becomes this invention.

[Drawing 2] It is the top view of the important section outline of drawing 1 .

[Drawing 3] It is the side elevation seen from the left-hand side of the washing conveyance direction in the 1st dehydration station.

[Drawing 4] It is the front view of drawing 3 .

[Drawing 5] It is the top view of drawing 4 .

[Drawing 6] It is the side elevation seen from the left-hand side of the washing conveyance direction in the 2nd dehydration station.

[Drawing 7] It is the front view of drawing 6 .

[Drawing 8] It is the top view of the dehydration chamber part of drawing 6 .

[Description of Notations]

2 Driving Shaft

4 Six Sprocket

7 Chain

8 Motor

11 Hanger Credit Implement

12 Washing

13 Hanger

20 1st Dehydration Station

21 2nd Dehydration Station

22 3rd Dehydration Station

23 Sponge Rubber Water Absorption Equipment

24 Suction Dehydrator

25 Sponge Rubber Water Absorption Equipment

33 34 Air cylinder

38 40 Sponge rubber

55 Squeezing Roller

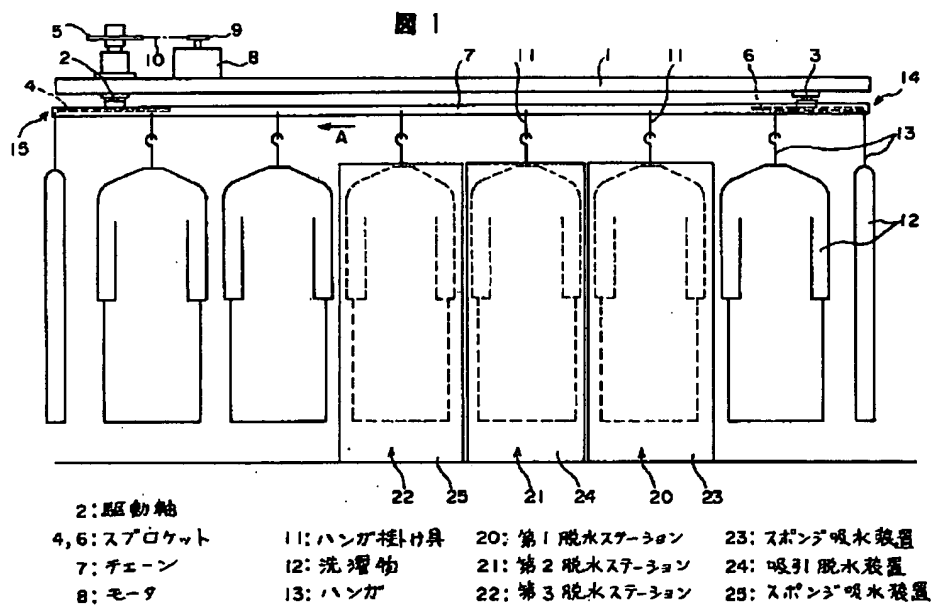
63 Air Cylinder

64 Dehydration Chamber

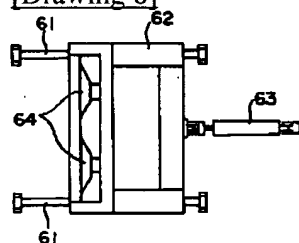
65 Blower Exhauster

## DRAWINGS

[Drawing 1]



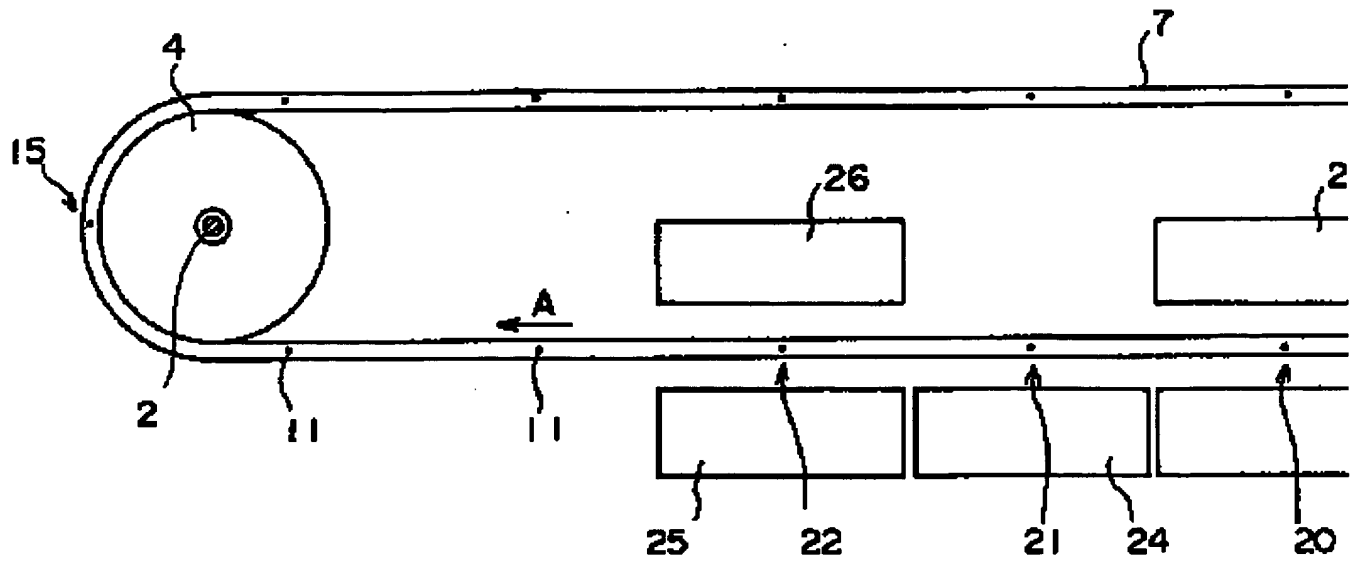
[Drawing 8]



[Drawing 2]



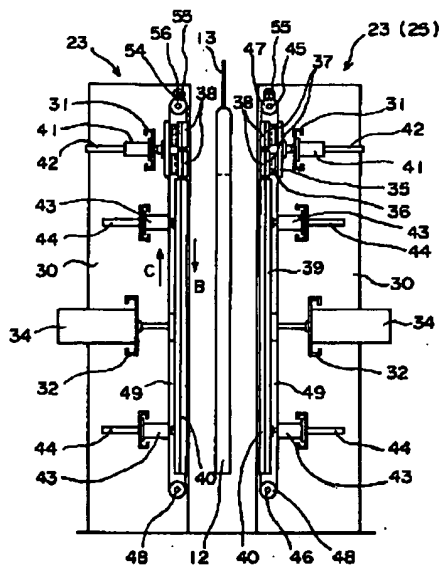
図 2



2:駆動軸  
4, 6:スプロケット  
7:チェーン  
11:ハンガ掛け具  
20:第1脱水ステーション

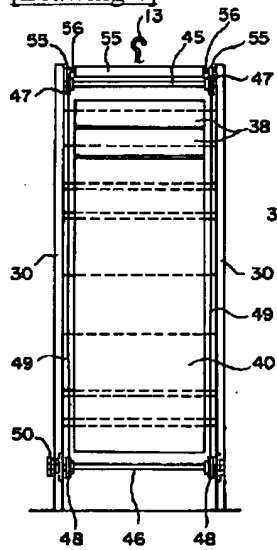
21:第2脱水ステーション  
22:第3脱水ステーション  
23:スポンジゴム吸水装置  
24:吸引脱水装置  
25:スポンジゴム吸水装置

[Drawing 3]



- 12: 洗濯物  
13: ハンガ  
23, 25: スポンジゴム吸水装置  
34: エアシリンダ  
38, 40: スポンジゴム  
55: 絞りローラ

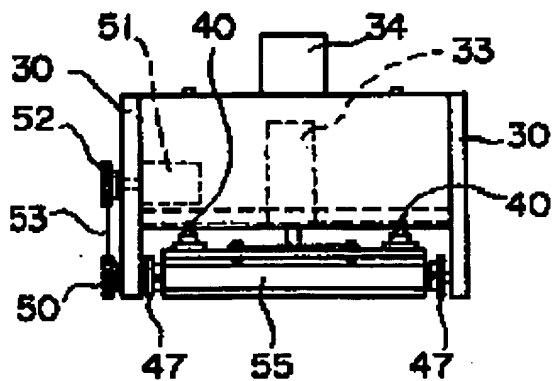
[Drawing 4]



- 13: ハンガ  
38, 40: スポンジゴム  
55: 絞りローラ

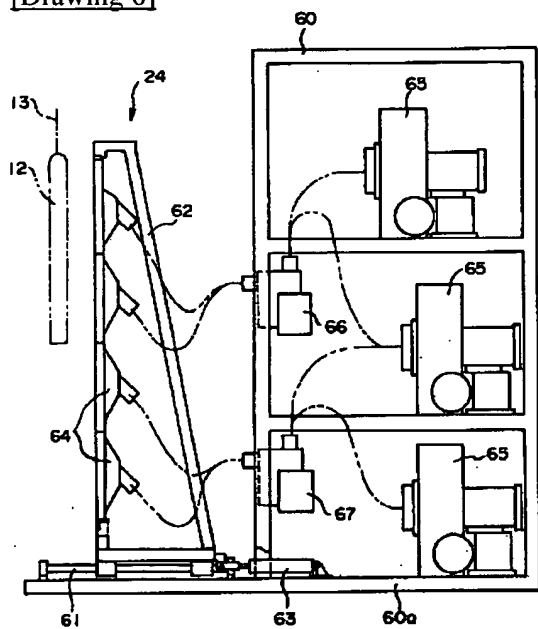
[Drawing 5]

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34: エアラインター  
55: 絞りローラ

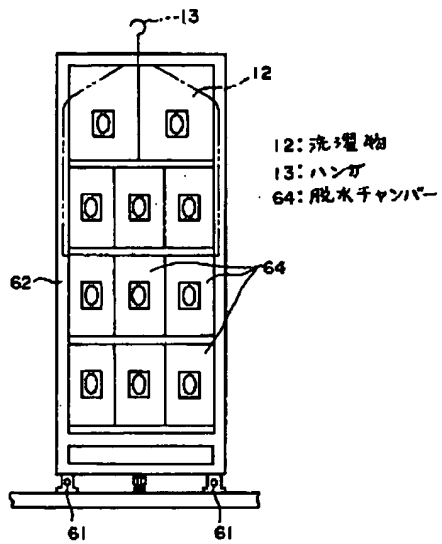
[Drawing 6]



12: 洗濯物  
13: ハンカ  
24: 吸引脱水装置  
63: エアリング  
64: 脱水チャンバー  
65: アロー排気装置

[Drawing 7]

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[Translation done.]

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